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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,881	02/24/2004	Ki-Bok Kim	1793.1139	9941

21171 7590 11/14/2006

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EXAMINER	
ALUNKAL, THOMAS D	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/784,881	KIM ET AL.	
	Examiner	Art Unit	
	Thomas D. Alunkal	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, the claims recites, "wherein the phase shift coating layer reflects incident light beams". Throughout the disclosure and from what is understood in the art, the phase shift coating layer is used to shift both phase and polarization states. Applicant must clearly define what "reflects" refers to in this claim. For faster prosecution, in this office action, "reflects" will be interpreted under its well-known meaning of reflecting light (i.e. reflection from a mirror).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3,5-6,8-16,18-21 rejected under 35 U.S.C. 102(b) as being anticipated by Hirai et al (hereafter Hirai) (US PGPub 2002/0093902).

Regarding claim 1, Hirai discloses an optical pickup apparatus (see Title) comprising: a light source (Figure 8, Element 1) to generate and emit light, an objective lens (Figure 8, Element 7) to converge the light emitted from the light source on an optical information storage medium, a light path converter (Figure 8, Element 6) to convert the light emitted from the light source and light reflected from the optical storage medium, a collimating lens (Figure 8, Element 5) to collimate the light emitted from the light source, and a photodetector (Figure 8, Element 9) to detect information receiving the light reflected by the optical information storage medium and by photoelectrically transforming the received light (Paragraph 7. Specifically, Hirai discloses the photodetector converts light into error signals), wherein a phase shift coating layer is provided on at least one of the light source, the objective lens, the light path converter (Paragraph 106), and the collimating lens to change a polarization state of the light emitted from the light source and a polarization state of the light reflected by the optical information storage medium (Paragraph 110).

Regarding claim 2, Hirai discloses wherein the phase shift coating layer reflects incident light beams at a same phase difference without depending on wavelengths (Figure 4, Element 106).

Regarding claim 3, Hirai discloses wherein the phase shift coating layer is coated such that a phase shift corresponding to a required wavelength bandwidth is produced

(Paragraph 33. Specifically, Hirai discloses that each of a plurality of light wavelengths is affected differently by the phase shift coating layer).

Regarding claim 5, Hirai discloses wherein the light path converter is a flat beam splitter (Paragraph 25. Specifically, Hirai discloses a dichroic element, which is a beam splitter).

Regarding claim 6, Hirai discloses wherein the light path converter is a cubic beam splitter (Figure 4, Element 104).

Regarding claim 8, Hirai discloses an optical pickup apparatus (see Title) comprising: a light source to emit light (Figure 8, Element 1), a mirror to reflect the emitted light toward an optical information storage medium (Figure 8, Element 6), and a phase shift coating layer provided on the mirror to change a polarization state of the light emitted from the light source (Paragraph 110).

Regarding claim 9, Hirai discloses wherein the light emitted from the light source is linearly polarized light (Paragraph 105), and the phase shift coating layer changes the linearly polarized light to left-handed or right-handed circularly polarized light (Figure 12A).

Regarding claim 10, Hirai discloses wherein the phase shift coating layer also changes a polarization state of light reflected from the optical information storage medium (Paragraph 106).

Regarding claim 11, Hirai discloses an optical pickup apparatus (see Title) comprising: a first light source to emit light (Figure 8, Element 1), light transmitting and/or reflecting units (Figure 8, Element 6) to affect the emitted light as the emitted

light is transmitted and/or reflected to/from an optical information storage medium, and a phase shift coating layer (Figure 10, Element 6b) provided on at least one of the light transmitting and/or reflecting units to change a polarization state of the emitted light.

Regarding claim 12, Hirai discloses wherein light reflected to the light source has a different polarization state than the emitted light (Paragraph 106. Specifically, Hirai discloses the light reflected to the light source is polarized in a direction different by 90 degrees from the emitted light from the light source).

Regarding claim 13, Hirai discloses wherein the light transmitting and/or reflecting units comprise at least one of a light path converter, a collimating lens, a mirror (Figure 8, Element 6), and an objective lens.

Regarding claim 14, Hirai discloses wherein the light path converter transmits or reflects the emitted light so that incident light is separated in two directions (Figure 4, Element 104. This is a property of a beam splitter).

Regarding claim 15, Hirai discloses wherein the mirror reflects the emitted light toward the optical storage medium (Figure 8, Element 6. This figure clearly shows light emitted from the light source being reflected toward the optical storage medium).

Regarding claim 16, Hirai discloses wherein the objective lens focuses the emitted light on the optical information storage medium (Figure 8, Element 7).

Regarding claim 18, Hirai discloses further comprising a second light source to emit light for DVDs (Figure 8, Element 1), wherein the light emitted from the first light source is light for CDs (Figure 8, Element 2).

Regarding claim 19, Hirai discloses further comprising a third light source to emit light for HD-DVDs (Paragraph 127. Specifically, Hirai discloses a third light source wavelength of 410nm).

Regarding claim 20, Hirai discloses wherein the first light source comprises a twin laser diode (Figure 23, light source).

Regarding claim 21, Hirai discloses wherein the phase shift coating layer creates a 90-degree phase delay between P- and S-polarized lights (This is an inherent property of the quarter-wave film discloses in Figure 10, Element 6b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al (hereafter Hirai) (US PGPub 2002/0093902).

Regarding claim 4, in the preferred embodiment disclosed by Hirai, Hirai does not disclose wherein the phase shift coating layer comprises at least 30 layers of same or different materials. However, Hirai does disclose that the multi-layer phase shift coating layer is commonly used in the art (paragraph 113 and 114).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made incorporate the phase shift coating layer comprising at

least 30 layers of same or different materials into the preferred embodiment disclosed by Hirai, motivation being that it is an art recognized equivalent that is used in the same environment, for the same purpose, to achieve the same result.

Claims 7 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai as applied to claims 1-6,8-16,18-21 above, and further in view of Nakagawa et al (hereafter Nakagawa) (US PGPub 2002/0071069).

Regarding claim 7, Hirai does not disclose wherein the phase shift coating layer is formed on a window of the light source. However, Nakagawa discloses a light emitting diode (Paragraph 83) which has a phase changing/polarization film located on the diode (Paragraph 140).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Nakagawa's placement of a phase changing/polarization film on the light emitting diode window into the optical pickup apparatus disclosed by Hirai, motivation being to reduce the overall size of the pickup by reduction of optical components, which results in a less expensive unit.

Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al (hereafter Hirai) (US PGPub 2002/0093902) as applied to claims 1-16,18-21 above, and further in view of Applicant's Admitted Prior Art.

Regarding claim 17, Hirai does not disclose wherein the light transmitting and/or reflecting units further comprise a grating to divide the emitted light into zeroth-order light and +/- 1st-order light, which have different diffraction angles and different light paths. However, Applicants Admitted Prior Art discloses the conventional use of a

grating positioned in the optical path of a light source in an optical pickup system (Figure 1, Element 13). The grating is used to split the light path emitted from the light source.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the grating disclosed by Applicant's Admitted Prior Art into the pickup apparatus disclosed by Hirai, motivation being to split the plurality of different light wavelengths emitted from the light sources, which prevents interference of optical paths.

Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Alunkal whose telephone number is (571)270-1127. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Korzuch William can be reached on (571)272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas Alunkal
Patent Examiner

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